Our Better Halves. By LESTER F. WARD. See page 187.
Facts as to Long Life. See page 186.

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HEALTH

A WEEKLY JOURNAL OF

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EDITED BY DR. ANDREW WILSON, F.R.S.E. &C.

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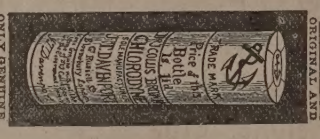

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◆ HEALTH ◆

EDITED BY

DR. ANDREW WILSON, F.R.S.E., &c.

LONDON: *FRIDAY, DECEMBER* 21, 1888.

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Notes by the Way

BY THE EDITOR.

"Health is the foundation of all our physical happiness."—*Herder.*

DR. NIVEN, of Oldham, in a recent report on the health of that town, gives an interesting account of the action of earth-worms on slop matters. He says: "I may also mention here an observation which I made in the autumn of 1886. Being present when the pavement was taken up opposite a house, the drainage from which I wished to see, I was surprised to observe about half an inch of black mould under the pavement. The slop-pipe opened untrapped on a square brick head leading to the drain, from the interstices of which all the mortar had disappeared, if it had ever been there, but the intervals of the bricks were swarming with a small red worm, about half the size of the ordinary earth-worm. Tracks were visible up to the surface, and a considerable amount of black mould was present round the brickwork. A big trail of black mould connected the brickwork with the drain of the house immediately above, which was evidently in a similar condition.

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"I WAS informed by a local builder that he had not infrequently seen the same thing, and other evidence was forthcoming that it was not altogether rare. Evidently the worms fed on the slop-matters and turned them into mould. My curiosity was excited to know whether worms could turn alkaline matters into acid, and I tried some experiments with a number of earth-worms fed on alkalized manure, and covered with sand. They brought up a small amount of matter, made out of the manurial straw used, which was very faintly acid. The period when this first appeared was from ten to thirteen days. I examined the untouched manure and the castings by plate cultivation. But to my surprise there were less moulds and proportionately more bacteria in the castings than in the unworked manure.

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"IT is curious that this should be the case, considering the acid character of the intestinal contents of worms, but the preliminary alkalization must be remembered. It is not unlikely that worms exercise a considerable influence on the bacteria and mould present in natural soil, though my experiments have revealed nothing definite. Nor, in fact, is anything to be made out in this way, unless one actually tabulated each colony found previous to and after digestion by the worms. It is clear, however, that worms have the power of changing material fitted to nourish disease-producing bacteria into mould. Dr. Ballard lately informed me that the same curious action of worms on slop-matter had been recently pointed out to him." The worm, so highly eulogized by Darwin, it seems, may be a benefactor to man in ways as yet scarcely appreciated by health-science.

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DR. E. HOFFMAN examined four flies which had been in the room of a patient who died of lung-tuberculosis or consumption. These four insects contained the specific germ of the disease, but this germ could not be detected in flies taken from other rooms. Artificially feeding flies with phthisical expectorations gave a positive result. They became feeble, with increase of the excreta, and soon died. The intestinal contents of infected flies inoculated into the anterior chamber of the eyes of nine guinea-pigs gave positive results in five cases. Henceforth the duty of killing flies which may infest sick-rooms becomes a bounden duty in view of the above facts.

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THE question of the mortality of stone-cutters has been investigated in fourteen large German towns during the two years 1886 and 1887. In the two years there were 87 deaths, 82 of which were from disease of the lungs. Of the 87, only one attained the age of 58, one died at 56, one at 55; 85 of the men died at ages not exceeding

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46 years; 20 between 36 and 46; 39 between 29 and 39; 25 in their 18th year; one at the age of 20. The mean age is, then, 34 years and one month. These results agree with the experience of the medical profession at home.

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MESSRS. MAIRET AND COMBEMALE have been making experiments on three healthy dogs in relation to the effects of alcohol on these animals. A dog was given daily doses of absinthe of 72 degs., the quantity was gradually augmented until it attained eleven grammes per kilo. This dog, suffering from chronic alcoholism, became the father of twelve young, all of which died within 67 days. Two puppies were born dead, three died accidentally. The seven others from different diseases—epileptic attacks, parasitic enteritis, and tuberculosis. The *post-mortem* examination showed changes similar to those found in alcoholism—thickening of the skull, adhesions of the dura mater, a difference of weight between the two hemispheres, and fatty degeneration of the liver. The mother remained healthy.

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A DOG, during pregnancy, was made to take daily two to five grammes per kilo. of absinthe of 72 degs. She bore six young, and three died. Of the three living, two developed healthily, but showed deficiency of intelligence. The third grew slowly, and showed defects of intelligence. The third case concerns the progeny of the last-named dog, which had never drank alcohol. It had three puppies, one of which had numerous faults of formation. The second died of intestinal obstruction; and the third also died of intestinal obstruction, and suffered from wasting of the hind quarters. These experiments, of course, specially prove the evil effects of absinthe on the frame of animals unaccustomed to the use of that spirit.

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PROFESSOR RAUDNITZ recently stated before the Central Organization of German Physicians in Bohemia, that milk obtained from a cow three weeks before, and kept at the ordinary temperature of a room, remained as alkaline as immediately after milking, and was not to be distinguished by taste, odour, or appearance, from freshly-drawn milk. This circumstance, as well as the fact that repeated boiling, to which a sample was subjected, produced no change, bespeaks entire freedom from germs, without any bacteriological examination. The steam apparatus in the stalls for boiling the feed is also used to sterilize the glass receptacles furnished with air-tight rubber stoppers, so that there is no extra cost.

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A COVERED wooden tub with shelves of perforated tin plate receives the bottles. By means of a pipe steam is passed into the tub from below. Prior to milking, the udder of the cow, the milk-pail, and the hands of the milker are carefully cleansed. The milk is strained through clean linen directly from the pail into the sterilized bottles. Should a steam apparatus not be accessible, the bottles can be sterilized in a large, covered vessel. Upon the recommendation of the writer, sterilized milk was so prepared and sold at Hostiwitz, near Prague, during this autumn. Since introducing among his patients milk thus sterilized, he has seen no cases of diarrhœa. Constipation is the rule upon weaning; in which case a small quantity of carbonate of magnesium or phosphate of sodium may be added.

Original Essays

"Life is not to live, but to be well."—*Martial.*

SMALL HOUSES AND THE DEATH-RATE.

BY DR. ANDREW WILSON.

IT is to be hoped that the address of Dr. Russell, delivered recently before the Philosophical Society of Glasgow, will not be allowed to pass into the limbo usually reserved for orations of this kind. Every sentence of Dr. Russell's should sink into the minds of the citizens of Glasgow, and of every other city and town, as words which represent grave and solemn truths of sanitation.

Moreover, the address was tinged with a spirit of very high and lofty humanitarianism, such as we have repeatedly found occasion to note in the public orations of the Glasgow Medical Officer of Health. He is no special sanitary pleader, but on the broad grounds of scientific research into the laws of hygiene, and of the crying duty of neighbourliness, asks us to consider well what disease means, and what impaired health would imply to the masses by which we are surrounded and encompassed. Dr. Russell follows Mr. Bright closely enough in his plea for the dwellers in one-roomed or analogous space-restricted habitations.

His figures may be recalled to mind as giving the most unqualified support to his contentions as a sanitarian and as a health reformer. In 1885 Glasgow had a population of 543,295, and showed a mortality of 13,439. Taking, as a guiding clue to the distribution of the deaths, the house-accommodation of the Glasgow population, Dr. Russell found that 134,728 persons dwelling in one-roomed houses contributed no fewer than 3,636 deaths to the total mortality just enumerated. Then, passing to the dwellers in two-roomed houses, he notes a population of 243,691 persons, who contributed to the death-roll 6,325 deaths. The three-roomed tenants numbered 89,956 persons with 1,747 deaths. Those in four-roomed dwellings numbered 32,742 persons, and contributed 581 deaths; while 38,647 individuals, inhabiting five-roomed houses, and dwellings of a still superior class, showed a mortality of only 434. The balance of the general mortality of 1885 is made up by deaths in institutions, numbering 427 (in 6,531 inmates) and by 289 deaths, the exact circumstances of which could not be traced.

Putting these figures as regards the relation between death-rate and house-accommodation, Dr. Russell finds that the dwellers in one-roomed houses represented 24·7 per cent. of the population, that they contributed 27 per cent of the deaths, or 2·3 per cent. in excess of their due and normal proportion. The two-roomed houses contained 44·7 per cent. of the population; they gave to the mortality-total 47 per cent. of the deaths, and also showed an excess of 2·3 per cent. above their limit. When we come to the dwellers in three-roomed houses we find an amazing and instructive difference. They contained 16 per cent. of the population of Glasgow in 1885; they furnished 13 per cent. of the deaths. But this latter amount represented 3 per cent. *less* than their due proportion. Similarly, the four-roomed houses showed a sanitary advance in the shape of a mortality deficit. They contributed 1·8 per cent. less than their limit of deaths; while the five-roomed dwellings and upwards are represented by a diminished percentage of 3·8 per cent.

Now, in their way, the foregoing figures teach us certain instructive facts. The general truth remains now, as of yore, the same for all places and for all times. The death-rate increases proportionately as we crowd our population into houses of three and two rooms and one apartment respectively; it decreases as we extend the air and space, and expand the means of decent and cleanly living. There is no axiom of sanitation more firmly fixed than is represented in such a declaration—indeed, its terms are as inflexible as those regulating any recognized law of nature. The trouble of Dr. Russell, and all health reformers, is that of getting people to recognize that health is not a matter of chance, but a thing of tolerably exact science; that one can no more become healthy, or the reverse, as the result of adventitious circumstances, than we can logically attribute the movements of a planet in its orbit to the action of varying, shifting, and altogether unfixed conditions.

The merciless logic of facts and figures, which Dr. Russell brings to bear on the health of Glasgow, teems with lessons which hold good for all other communities. Especially in Scotland do people require words of warning regarding the dangers of overcrowding, and the need for a fair modicum of fresh air and house-room as essential factors in the health of the community. The Scottish dwellers in large towns not merely increase superficially and over an area, but overcrowd cubically, so to speak, through the medium of the flat and tenement system. Dr. Russell has himself spoken of the dangers of the block system of houses. It is true that the back-to-back houses of English centres, with their enormous infantile mortality, are responsible for much ruin of health and for much waste of life. But they do not exceed, in their deleterious effects on the public health, the great blocks of Scotch houses "made down" into dwellings of one room, and each apartment filled to stifling with a family-life from which all comfort and decency are only too surely banished, or in which the merest rudiments of morality have never been able to find a congenial soil.

The public have yet to learn, and our municipal advisers and fathers have still to appreciate, more fully what this lack of air-space means in the matter of health. It implies undeveloped bodies, a stunted youth, and an unsuccessful infancy. It associates itself, as we have seen, with an unenviable and high rate of mortality head over head. It favours the growth of criminal life, and obstructs all the agencies at work amongst the poor for their moral and social elevation. Without decent air-space and house-room, life is really the task of Sisyphus for all concerned—alike for the overcrowded units and for the reformers eager to ameliorate and to remove the crying evils of the slums.

It is characteristic of Dr. Russell, as of every other sound reformer, that he advocates no panacea for the evils of which he so eloquently speaks. He is content to trust to the machinery of our legal and social system for the means of improvement—to our legal system to invest with the necessary powers the sanitary authorities; and to our social system which, with its humanitarian spirit, will bring to pass a better state of things in our midst. Of all men, perhaps, sanitary reformers require to brace and to train their minds well to face the disappointments of life. They must expect neither great nor speedy rewards to follow their labours. It is, with them, "here a little, there a little," in this work of sanitary reform, and the great results of the future to which they aspire are admittedly things to be achieved on the "line upon line" principle alone. Possibly, the sanitary reformer may also claim that, more directly than other workers for humanity's sake, he comes face to face with the inevitable problem of the lapsed and lost units of the human race.

Dr. Russell himself seems to have felt the difficulty of facing the question of the landlord who receives as his tenants the lowest of the species who swelter in the slums. One of the chief objections to all schemes which postulate a perfect Hygeia City as their model is summed up in the declaration that to ensure the successful usage and employment of all the conditions of such a sanitary ideal, we should require to select our tenants, and to be enabled to certify to their practical acquaintance with the laws of health. How far off from the realization of this state of matters our city populations are, is a declaration which needs no comment whatever. Sanitarians have simply to do the best they can with the units at their command. They have to encounter opposition and prejudice; they have to combat ignorance and superstition; but, all the same, they have right on their sides, and facts fighting valiantly for them.

Once let even the lowest of the masses understand that a municipality is willing to assist them to reduce disease and to prolong life by means of sanitary dwellings, and the units in question will not be backward to co-operate in the work which is fraught with so much good to them. There will, however, always be a substratum of humanity which no effort of either science or religion can reach, or raise to better things. It is no pessimism, but sober fact and experience, which declare that, as some things are past finding out, so the "flotsam and jetsam" of humanity defy all efforts to make it cleanly, decent, moral, and healthy in character. Dr. Russell's address serves at once to point the moral in this direction, and to adorn the tale of success which sanitary science has to record.

The moral of the story he has so ably told is that even in the lowest depths of our city life there is no lack of results from sanitary work, even of the most trivial and desultory kind. Where schemes such as those of Dr. Russell himself can be carried out to the full, the measure of improvement will be of literally overwhelming character.

LICE and other parasites are removed from the hair quicker and better by a decoction of quassia, to which a little borax and glycerine have been added, than by almost any other known means.

A STARTLED DENTIST.—A young country dentist recently had recommended to him as a patient the bishop of his diocese. His first commission was for a complete set of teeth, and a day was appointed for the prelate to call and fit them in. It was a moment of anxiety—and, indeed, professional importance—to the dentist, as he watched his lordship examining himself and his new teeth in the mirror. Imagine his horror, therefore, when he distinctly caught an expression of a damnatory character ending in "ation" from his client's lips. "I daresay they are a little uncomfortable, my lord," he murmured conciliatingly, "just at first and until you get used to them." "Without doubt you shall perish everlastingly," exclaimed the bishop with vehemence. "But, indeed, my lord, if you will have patience," pleaded the dentist, "in a week's time——" "What do you mean?" inquired the prelate, turning round with an apostolic smile, "Why should I not have patience? The teeth fit me beautifully. It is the first time I have found myself able to pronounce the Athanasian Creed with distinctiveness for twenty years."

THE CHEMISTRY OF THE HOUSE.

By Dr. Drinkwater, F.C.S., &c.

Lecturer on Chemistry in the Edinburgh Medical School, &c.

ELEVENTH PAPER.

LAMPS.

After having experienced the benefits and advantages of gas for, we may say, sixty-four years,—for although discovered in 1792 it was 1814 before it was introduced into general use,—we are gradually going back to the ways of our forefathers, and using lamps and candles as means of illumination. It is somewhat difficult to understand the cause of this. Perhaps in many instances the gas companies are to blame for supplying an inferior article. Again, there seems to be a gradual tendency to use stronger lights, and with a lamp the light is more concentrated than with gas; or it may be that our art instincts which have been dormant for a number of years are now telling us that, whilst a lamp may be "a thing of beauty," an ordinary gas chandelier has not usually many æsthetic points.

Perhaps it is simply due to one of those waves of eccentricity which occasionally disturb civilized communities under the name of fashion that is making us all take a sudden affection for lamp-light and a corresponding disgust for gas. Whatever the cause, the fact remains that very few houses are now without a lamp. Years ago, when gas was not so well known, vegetable oils were used for lamps, and the old moderator-lamp, with its complicated mechanism for forcing the oil up to the wick, was always fed with the expensive colza oil. Nowadays, chemistry has shown us the way to extract oil from a peculiar kind of coal; and it is this oil, known either as paraffin, kerosene, or crystal oil, that is so largely used as lamp-oil.

This peculiar kind of coal is known as *shale*, and is found in various localities. The principal seat of the industry in Great Britain is in the district lying between Edinburgh and Glasgow. A large number of mineral oil-works are situated in this district, employing a large number of workmen and scientific experts, but adding anything but beauty to the landscape.

The shale, which to a certain extent resembles coal in outward appearance, is heated in upright retorts into which a jet of steam is forced, and the products condensed in large vessels. The distillate separates into two layers, watery liquid and tar; whilst the gas is, as a general rule, allowed to burn to waste. The watery liquid is valuable, on account of the ammonia which it contains, and is treated in a similar manner to that produced in coal-gas manufacture. The tar is washed with oil of vitriol and then with soda, and again distilled,—these processes being repeated several times, the object being to separate heavy oil and light oil.

The light oil, when purified, forms the burning oil; whilst the heavier portions are again separated into lubricating oil for machinery and solid paraffin wax. The latter is used for making candles, for various scientific purposes, and by laundresses for putting a glaze on linen. What is of most importance to us at present is the burning oil. I need hardly say that there are several qualities of burning oil; we might class them roughly as safe and unsafe, and the group into which we should put any particular kind of oil would depend on what is known as its *flashing point*,—this term indicating the temperature at which it gives off inflammable vapour, for herein lies the danger in using mineral oil.

Good mineral burning oil does not, as a rule, give off inflammable vapour below 140 degs. F. It is, I know, generally supposed that paraffin oil is about as dangerous an article as gunpowder. This is about as popular a fallacy as that before mentioned in connection with the gas-holders, and one as easily disposed of. If a small quantity of good paraffin oil is poured into a saucer and a lighted wax match plunged boldly in, it will be extinguished in the same way as it would be in a saucer of water. It is only when the oil is converted into vapour, and that vapour mixed with air that, danger arises, and that an explosive mixture is formed. Now, in a badly-constructed lamp, or even in a well-constructed lamp badly managed or carelessly handled, the explosive mixture may be formed and ignited, and then an explosion of course follows. A large number of so-called lamp explosions are really lamp upsettings. Unfortunately, newspaper reporters and the general public put down every kind of accident in which a paraffin lamp plays a part as an explosion.

Considering the varieties of lamps in the market, we should have no difficulty in selecting one that is at the same time both a good and safe illuminator. The common paraffin lamp, with its simple construction, will only burn oil of a volatile nature, and is hence more dangerous than those of a more complicated and, of course, more expensive construction. From what I have stated, it will be seen that two great elements of danger are to be avoided, viz., heating the oil in the reservoir, and upsetting the lamp. Various patents have been brought out for overcoming these dangers.

In the Defries lamp a special arrangement is introduced, so that the lamp is extinguished in the act of upsetting; whilst in Hink's Duplex Lamp the wick, in passing to the oil-reservoir, is surrounded by a wire gauze, which prevents the passage of any flame to the oil or oil-vapour contained in the reservoir. An explanation of the influence of wire gauze on flame is perhaps necessary here, and before we can understand its action we must know what flame is.

Flame is highly-heated gas,—gas, we might say, at a white heat,—and produced in a lamp or candle in much the same way as gas is produced in a gas-works. If you carefully examine a candle flame, you will notice it consists of three distinct parts. Inside, near the wick, and actually enclosing it, is a dark portion, or zone, as it it termed, giving out no light; next is a broader zone, which is luminous; and outside all is a pale blue zone of a non-luminous nature, and almost invisible, unless you shield the light from the luminous zone with a cardboard mask. The innermost dark portion is known as the zone of unburnt gas, the broad yellow portion as the zone of incomplete combustion, and the thin outside covering of a pale blue colour the zone of complete combustion.

In typical and complete flames, all these parts are present. The products of combustion are different in each of these portions. In the zone of unburnt gas, of course, no chemical action is going on; it is simply a reservoir of gas; it is, in fact, the analogue of the gas-holder of a gas-works. Without asking too much of our imagination, we might compare a candle or lamp to a gas-works. The fatty matter of the candle or oil of the lamp would correspond to the coal; the wick would represent the retort. In this wick the oil or melted candle is drawn up and heated, so as to give off inflammable gases; these gases are stored in the dark zone, and are gradually passed into the zone of incomplete combustion, where, in presence of a small amount of air, they undergo partial combustion, producing carbonic acid

gas and water, and separating a certain amount of carbon in the solid state as soot or lamp-black. The carbon, in passing through the outermost zone, meets with a full supply of air, and undergoes complete combustion to carbonic acid gas. The presence of solid matter in the middle zone is easily proved by placing a piece of cold glass or porcelain well down into the yellow flame, when it speedily becomes coated with soot.

By various methods we can do away with the zone of incomplete combustion, and thus we produce a flame which gives little or no light. The ordinary Bunsen burner, which is so much used in chemical laboratories, and also in houses for cooking and heating purposes, is a very good example of such a flame. If we take an ordinary flame and press down on it a piece of wire gauze, we shall find that the flame refuses to pass through it. Or we may reverse the experiment, and hold the gauze above an open gas-jet, and can then light the gas above the gauze without the flame reaching the gas below. These two experiments show that flame will not pass through metal gauze, the reason being that the cold metal removes or conducts the heat away so rapidly that the gas is no longer incandescent, no longer hot, and therefore no longer flame. Sir Humphry Davy utilized this fact in his invention of the safety lamp, which consists of an ordinary oil lamp surrounded by a wire-gauze cylinder. Such a lamp may be taken into an explosive atmosphere, and although the inflammable gases may burn inside the lamp, the flame cannot communicate with the explosive mixture outside.

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THE EVILS OF IMPURE AIR.

A cough, cold, pleurisy or pneumonia, then fever, wasting, hæmorrhage from the lungs, night-sweats, poor appetite, diarrhœa, swelling of the feet, and, last of all—the end. That is consumption, insidious, widespread, fatal; a disease which sweeps away such a multitude that about one out of every five deaths is due to it. One-half of all the post-mortems reveal evidences of its presence.

The writer of a very good book on climate for phthisis recently was brought to book for recommending Denver, in Colorado, to consumptive patients. The place is high, the air clear and dry, and so on, but it has, if we mistake not, considerably over 100,000 inhabitants. Where there is the busy hum of men is not the place for the consumptive. One of the evening papers a few nights ago observed that if Mr. Ernest Hart were to succeed in getting London rid of its smoke, he would have done more good to the city than all the other London doctors put together. When one speaks of the dust-laden air of London, its water dangerous to drink, its overcrowding, its many unsanitary points, the exclamation comes as a squelcher, "Why, my dear sir, London is the healthiest city in the world; just look at the very low rate of mortality!" Was it Dean Swift who said, "There is nothing so false as figures, except facts"? Never, perhaps, were statistics more misleading than in the case of London. A very large proportion of the population are young people in full vitality or people in middle life, who can best withstand a tax upon the system, and very many of whom retire to their homes whence they came, when severe illness overtakes them. The unduly low relative proportion of children, which always raises enormously the death-rate and keep it up, and a small proportion of our old are among the phases of the question left out of the reckoning. Whatever may be said in its favour, London is not so healthy as is generally believed, and, like Sisyphus, those living in it have perpetual difficulties to contend with. They overcome the difficulties best, other things being equal, who live most in accord with sanitary laws. Not every one knows these laws, not every one who knows them follows them.

"Evil is wrought by want of thought,
As well as by want of heart."

A mother consulted the writer about her daughter, who is away at school, and has a bad cough. "How large is her room?" I ask. "Not so very large, my daughter writes." "Are the windows open at night?" "She writes, not—that the principal saw the window pulled down a trifle one summer's night, and scolded the girls severely." Just the thing this, to plant troubles in the lungs, to stick there. Imagine "a wise schoolmistress," learned in womanly knowledge, crowding four young girls into a small closed room to sleep! The day may come when such a course will be considered a misdemeanour, and slowly disposing of an infant with starchy food something more—very considerably. Some day we shall fasten on to the authorities the responsibility they shirk now. We hunt with keen scent for a homicidal maniac, and are horrified at his atrocities. What are they amidst the sufferings and deaths entailed by the present imperfect workings of sanitary science? Nothing.

To the city proceed the geniuses, but in their progeny too often the strain of greatness disappears, sometimes to be replaced by epilepsy, insanity, consumption, &c. Good air, light, good food, and proper housing are requisite if England would perpetuate in their young the greatnesses of her greatest scions, and eliminate all possible disease from her shores.

We have spoken of consumption. To remove it lies in the direction of prevention, not so much in cure, though it has been, doubtless, cured by the Kepler Solution of Cod Oil; but to remove it and many other diseases, we repeat, we must look to sanitary science.

FACTS AS TO LONG LIFE.

What tends to long life is a study with more profit as facts are used for data. The editor of a Boston paper, unread in theory, sent blanks through Massachusetts to men and women of eighty years and more, inquiring as to habits, state of eyes, teeth, hearing, and the like, getting over 3,500 replies, and if in these there is nothing to refute the assertions of the theorists, there is yet not anything to sustain them.

They ate meat, save in a few cases, *ad lib.*, and though none of them, if we take their own word for it, have drunk freely of spirits, all, or nearly all, have taken of them on occasion. These old people are from cities, towns, agricultural and maritime districts; in nearly all cases leading active lives, eating three meals a day, the dinner being, as is the custom in New England, in the middle of the day, of meat and vegetables and pie, and very hearty. Curiously enough, though the women are of medium height, the men are mostly tall, above the average; and so greatly do blue and grey eyes prevail that other shades are notable exceptions. Baldness is rare, the hair being usually brown and thick, but the teeth are very poor or entirely gone. The report says:

"These old people, men and women alike, are early risers almost without exception, and fully nineteen out of every twenty have observed this custom through life, except perhaps, in some short period of youth. . . . Exercise has been hard up to sixty-five or seventy years, and after that period has consisted (when the regular occupations have been given up) of walking or gardening, or both. Except in cases of sickness, these old people are as active and as fond of constant occupation of some sort to-day as most men and women are at thirty-five. One of the most significant facts gathered in this canvass is that regarding occupation. Out of 1,000 men, throughout life, 461 have been farmers; 92 have been carpenters; 70, merchants; 61, mariners; 49, labourers; 42, shoemakers; 41, manufacturers; 23, clergymen; 23, masons; 16, blacksmiths; 16, bankers; 12 each, iron workers, mill hands, physicians, and lawyers; and the rest are divided among nearly all the other trades and professions. Eight hundred out of twelve hundred have been farmers' wives, and all but about fifty of the remainder have been housewives."

Tea and coffee-drinking was indulged in by fully two-thirds of the 3,500, with some of them to excess; and of the men, nearly all have both smoked and chewed tobacco, the amount daily consumed by some having been enormous.

Their cares were as heavy as those which come to most of the human family, their work not less arduous. Most of them led lives which some might call monotonous, yet with occasional excitement to them as great as the intenser kinds to those more used to it.

Summing up all that the compiler has set down from the answers sent to his questions, we find that all were regular in their habits, with plenty to occupy their hands and minds, and getting plenty of fresh air. This seems to be at least a primal quantity in the solution of the problem of long life. Men like these, with plenty of work and fresh air, are able to eat and smoke, even to a point we would call excess, without injury, and even to drink at times with no evil resulting. It is those of sedentary habits, who do no hard labour and get little exercise or fresh air, who must be the most careful.

An Albany physician says he has never known a case of cancer among the Hebrews, and thinks their exemption from the disease is due to their abstinence from pork.

Vaccination.—That small-pox has greatly declined in England during the past fifty years is apparent from the figures which have been published by Dr. Henry Thorne. From 1838 to 1842 the deaths from small-pox in England amounted to 57·2 per 100,000; in 1880-84 the death-rate was 6·5 per 100,000. He thinks that vaccination has not only a direct influence in causing this reduction in the number of victims to small-pox, but that it has also a tendency to decrease the liability to the disease of children of vaccinated parents. In this connection it is interesting to note the *Medical Press* states that out of the five thousand children born every month in Paris only a thousand are vaccinated by the medical officers appointed for that purpose. The remaining four thousand infants are, therefore, either vaccinated by private practitioners or not at all. Seeing, however, that more than half the population apply for and receive gratuitous medical attendance, and that half the burials are gratuitous, it is very unlikely that all of the four thousand are vaccinated at the cost of the parents. It may fairly be assumed that a large proportion are not vaccinated at all, and that is why small-pox exists as an endemic disease at Paris, and does not disappear, as it has done, to a great extent, in Germany.

Dangerous Toys.—The manufacture of toys is not usually a dangerous process, but the circumstances attending the recent explosion in a factory at Wandsworth show that it is not always free from risk. In this case two girls employed in making amorces, or caps for use in toy pistols, were accidentally killed by the detonation of a number of these caps, due to the fact that one or more had been overfilled with its explosive contents. Major Cundhill, who conducted an inquiry into the matter, suggests that this branch of industry, which exists only for the amusement of young children, might be discontinued with advantage. In view of the recent unfortunate occurrence, his view deserves consideration. It is also necessary, at the same time, to remember that his argument is based upon a case in which faulty management is alleged, and he does not show that the use of these caps in small quantities by children has been attended by any hurtful consequences. It must be allowed, however, that they are not the safest form of plaything, even though sold in small quantities. Children probably would not much mind the loss of their present liberty to crack off these tiny explosives, but the case of the makers also demands a share of attention. Whether it is feasible at once to stop the manufacture we cannot say; but, if this is impossible, the facts of the accident, if they show anything, teach the importance of regulating very carefully the preparation in quantity of such unstable materials.—*Lancet.*

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"The child is father of the man."—*Wordsworth.*
"In bringing up a child, think of its old age."—*Joubert.*

OUR BETTER HALVES.

By LESTER F. WARD.

THE practice of calling women better than men is purely chivalric—an empty compliment to the sex. The less enlightened regard them as inferior. The more enlightened consider them equal when all elements are taken into the account. The general opinion is that they are superior morally and inferior mentally and physically. But there are so many kinds of moral, mental, and physical qualities that each of these classes, when carefully analyzed, is found to contain some elements in which the one and some in which the other sex stands higher. It is therefore a difficult problem, increasing in intricacy with more thorough and candid investigation. Attempts have been made, often with much success, to point out the leading characteristics in which the sexes differ, especially in mental traits, and some have gone deeper and sought to explain these differences as arising from physical and social conditions.

It is not my purpose to treat the subject from this standpoint, nor to attempt in any way to show wherein superiority consists. I propose simply to predicate of the female sex a particular kind of superiority, and to offer some proofs on this single point. Whatever may be woman's present condition in civilized, barbaric, or savage society, and whatever may be the condition of the female sex in the different departments of animal life, I shall undertake to contend that in the economy of organic nature the female sex is the primary, and the male a secondary element. If this be a law, its application to the human race is readily made, and its importance to social life cannot be ignored.

That such a view should be looked upon as unsound, and even absurd, by those who have only studied men is quite natural, but one would suppose that close students of nature, particularly such as have chosen the world of life as their special field of research, would pause at this question, and seek to give it such a final solution as to prevent its return into the arena of discussion. I am sorry to say they have not done so. In fact, so far as I have observed, they have treated it from the most superficial standpoint. Writers of this class have frequently drawn important practical conclusions from what I hope to show to be mere half-truths—conclusions bearing upon the future education, treatment, and position of woman in society. A quotation or two from authors of repute will make this point clear. Thus, in an article entitled "The Woman's Rights Question Considered from a Biological Point of View," in the *Quarterly Journal of Science* for October, 1878, the writer says :—

"We purpose, therefore, to examine this question in the light of the principles of natural selection, of differentiation and specialization, and to inquire whether the relations of the sexes in the human species and the distribution of their respective functions are or are not in general harmony with what is observed in that portion of the animal kingdom which lies nearest to man; to wit, mammalia. . . . Even a very superficial and popular survey of the class mammalia will satisfy us that the structural differences between the males and the females of each species are by no means confined to the reproductive organs. The male ruminant, whale, bat, elephant, rodent, carnivore, or ape, is on the average a larger and heavier animal than his mate. The tiger, for instance, exceeds the tigress in size by a proportion of from ten to twenty per cent. In few, if any, species is the superior stature of the male more striking than in the one which approaches man most nearly in its physical development—the gorilla. But the mere difference in size is not all; the female is scarcely in any normal case a mere miniature copy of the male. Her proportions differ; the head and the thorax are relatively smaller, the pelvis broader, the bones slighter, the muscles less powerful. The male in many cases possesses offensive weapons which in the female are wanting. In illustration we need only to refer to the tusks of the elephant and the boar, and the horns of many species of deer. On the contrary, there is no instance of a female possessing any weapon which is not also found, to at least an equal degree, in the male. Further, the superior size of the head in the male is not merely due to the more massive osseous growth needful for the support of tusks, horns, &c., but to a proportionately larger development of brain."

And after much more in the same strain this writer concludes :—

"We have, therefore, in fine, full ground for maintaining that the 'woman's rights movement' is an attempt to rear, by a process of 'unnatural selection,' a race of monstrosities—hostile alike to men, to normal women, to human society, and to the future development of our race."

Prof. W. K. Brooks, in a very able article in the *Popular Science Monthly* for June and July, 1879, succeeded, as I think, in proving that the well-known passivity of the female sex has the important significance that it represents the principle of heredity, or permanence of type, the male representing that of variability; thus completely reversing the *varium et mutabile semper femina*. But notwithstanding his lucid conceptions on this point, Prof. Brooks felt called upon in this article to write :—

"Our conclusions have a strong leaning to the conservative or old-fashioned view of the subject—to what many will call the 'male' view of women. The positions which women already occupy in society and the duties which they perform are, in the main, what they should be if our view is correct; and any attempt to improve the condition of women by ignoring or obliterating the intellectual differences between them and men must result in disaster to the race, and the obstruction of that progress and improvement which the history of the past shows to be in store for both men and women in the future. So far as human life in this world is concerned, there can be no improvement which is not accomplished in accordance with the laws of nature; and, if it is a natural law that the parts which the sexes perform in the natural evolution of the race are complemental to each other, we cannot hope to accomplish anything by working in opposition to the natural method,"

Utterances similar to those above quoted have constantly found place for the last twenty years in our best scientific literature, and it may be fairly said to be the fashion among scientific men to treat the woman question from this point of view. A great array of evidence is brought to show that woman is physically inferior to man, that she is smaller in stature, and that her brain is not only absolutely smaller, but is smaller in proportion to her body; that she has less strength in proportion to her size, less power of endurance, and a greater number of ailments. This, it is said, is the natural result of her

sex. Reproduction is so great a drain upon the female system that we should expect it to be attended with diminished strength and vitality. It is further argued that the smaller and weaker females of animals, as well as the young, are protected by the larger and stronger males, and the inference is freely drawn that the dependence of the females among animals is similar to that of women in society, which latter is therefore the natural condition.

I shall not deny the fact of woman's physical and mental inferiority, nor shall I deny that the differences are, in the main, due to causes analogous to those which have differentiated the sexes of the higher animals. I must, however, deny *in toto* that these causes are what they are assumed by these writers to be. It has always surprised me that those who start out avowedly from a Darwinian standpoint should so quickly abandon it, and proceed to argue from pre-Darwinian premises. It was Darwin who taught us why the boar has tusks, the stag antlers, and the peacock gaudy tail-feathers. It is because the females chose mates that possessed these characters. The characters selected by the females have been, in the main, those that tended to insure success in rivalry for mates. The greater size and strength of the males, together with their powerful weapons, have not been acquired, as is implied in the argument above stated, for the purpose of protecting the dependent females; they have been acquired entirely for the purpose of combating rivals and winning mates. In very few such animals do the males ever attempt to protect the females, even where the latter have their young to take care of. When the hen, with her brood of chickens, is attacked, it is not the cock that ruffs his feathers and defends them with his spurs; it is the mother herself that defends them. The cock is always found with hens that have no chickens, and only uses his spurs in fighting with other cocks that have no notion of injuring the females. In the entire animal kingdom the cases where the male uses his great powers to protect the female or the young, or to bring them food, are so rare that where they are observed they are recorded as curious approximations to the social state of man. These "secondary sexual characters," as Darwin has named them, are generally adapted to aggressive warfare, not with the enemies of the species, but with the males of the same species for the possession of the females. All this has positively no analogy with the human condition, and those who cite these facts as a justification for retaining woman in a lower sphere of either mental or physical activity than that occupied by man, abandon the modern and correct interpretation of them, and fall back upon the old interpretation, which has been proved to be false.

That secondary sexual characters exist in man is, indeed, true. His beard is clearly one of the purely ornamental ones. His larger size and greater strength were doubtless acquired before his moral faculties had awakened, and are the result of his battles for his wives. The predominance of the male brain in the human species doubtless partakes of this nature, and is in a large degree attributable to this cause. The time came in the development of the race when brute force began to give way to sagacity, and the first use to which this growing power was put was that of circumventing rivals for female favour. Brain grew with effort, and like the other organs that are so strangely developed through this cause, it began to be more especially characteristic of the sex. The weaker sex admired success then as now, and the bright-witted became the successful ones, while the dull failed to transmit their dulness. There was a survival of the cunning.

The first use of mental power, as of physical power, was to defeat rivals and secure mates; it was not to protect female frailty or supply food to offspring. The females protected themselves and their progeny by maternal instinct. The females of all wild animals are more dangerous to encounter than the males, especially when they have young; and it has been observed that the male carnivores rarely attack man.

Nor do I deny that these agencies of selection are still at work, slowly, it is true, but perhaps as rapidly as at any previous period, producing physical modifications in man. But it is no longer simple female selection of male qualities, as in the lower animals; there is now going on an opposite class of influences by which a true male selection is bringing about modifications in woman, and this had progressed so far at the beginning of the historic period that the ornamental characters had been, as it were, transferred from the male to the female, and beauty, which in birds and many animals is the exclusive attribute of the males, had become the leading attribute of the women of the higher races. And while setting down this fact, let me call attention to its great significance as pointing to future possibilities in woman when men shall learn to select other qualities in their companions than mere beauty; for under the power of this comparatively modern male selection woman may become whatever man shall desire her to be, and the ideal woman, however high the standard, will become more and more the real woman.

The entire argument of those who would restrict woman's sphere because she is mentally and physically inferior to man would therefore fall to the ground, even if we were to admit that there was something in her sex that rendered that inferiority natural and essential. To be fully consistent, it would be necessary to insist that woman should defend both herself and her offspring from hostile influences of all kinds, and also assume the whole duty of supplying her children with food, while the sole function of man should be, as it is in most mammals and birds, to take care of himself and fight off rivals. This would be the "natural" state of society in the sense in which these philosophers employ that term. It is only distantly approached in a few of the very lowest tribes of savages.

(To be concluded.)

SULPHUROUS ACID FUMIGATION IN WHOOPING COUGH.

DR. FREDERICK EDWARD MANBY, of Wolverhampton, writes as follows in the *Practitioner*:—The known difficulty of giving relief to the little sufferer from whooping cough, except in the most general ways, led me at first to doubt the correctness of the statements made in regard to the above method of treatment in the *London Medical Record* (Part 140, p. 59, New Series).* Moreover, one of the most recent writers (Dr. W. Squire, in *Quain's Dictionary*) epitomizes our experience of treatment thus: "We have no specific for whooping cough, no drug to check its onset or stop its course;" and, again, "Attempts to cut short the disease by inhalations or insufflation of germicides fail."

It was thus with much hesitation that I decided to give the plan a trial—with what result I must crave my readers' indulgence to describe. Dr. Mohn says that the cases he tried the fumigation in "were healed as if by enchantment after one fumigation," and again, that they

* See also *Practitioner*, xxxviii, 372.

were "at once cured by the fumigation." I cannot advance such evidence of *immediate cure* as Dr. Mohn has given in the paper cited, but I can most emphatically endorse his statement of the benefits to be derived from the treatment. I applied the method of fumigation by sulphur according to the instructions given.

The method is the following:—The children are in the morning put into clean clothes and removed elsewhere. All their clothes and toys, &c., are brought into their bedroom, and sulphur is burnt upon a few live coals in the middle of the room. The fire is allowed to remain in the room for five hours, and then the windows and doors are thrown open. The child sleeps in the room the same evening. About 25 grammes (a little under an ounce) of sulphur to every cubic mètre may be burnt; this is equivalent to rather more than 10 grains per cubic foot. The additional precaution was taken of having the day room fumigated in a like manner during the night—the children practically lived in an atmosphere of diluted sulphurous acid gas for some days, while in several cases I had the process repeated at the end of the week.

In every instance, without exception, my observation leads me to look upon the method as a practical cure for whooping cough. There is no doubt about it—mothers and nurses all agree with me that an immediate improvement is effected. Cough is lessened in frequency, expectoration of the thick clogging mucus much facilitated, paroxysms lessened in violence, and sickness after them as a consequence scarcely known. The children pick up quickly, and in no case has the cough lasted in its form of reduced violence more than a fortnight after the treatment commenced; it gradually but surely abates and ceases. I have had no specially severe bronchitic or pneumonic complications to deal with in the twenty or more cases in which I have applied the treatment, but I do not think I should desist if such complications existed.

My opinion must go for what it is worth, but I thoroughly believe that if this method could be at all generally applied throughout the country during, say, six months from any given date, whooping cough would become as rare a disease as the plague.

The action of the sulphur must be that of a germicide, and in twenty-five years' experience I have seen nothing like such results from any other kind of treatment.

Cocoa contains half its weight of a peculiar fat of high melting point, known as cocoa butter. This fat is very useful, because, unlike other fats, it does not get rancid on keeping. It is largely used as a constituent of the cream of chocolate-creams, for pessaries, and for pharmaceutical preparations. Like tea and coffee, cocoa possesses an alkaloid (theobromine); similarly, too, it contains a quantity of a tannin compound. Strange to say, almost all of the favourite beverages taken-to by men are of an astringent (tannin-containing) character. The large proportion of fat present in cocoa prevents its use by many people; hence samples from which most of the fat has been extracted find a ready sale. In other cases not only is most of the fat taken away, but arrowroot, or sago and sugar, are added in large quantity. Such samples form a pasty mass when boiled with water, in fact, "thicken in the cup." They are frequently known as homœopathic cocoa, and some of them possess so little cocoa as to form merely a species of gruel. Luckily, the microscope, and the proportions of fat and of phosphates, are means whereby the adulterations can be estimated.

Popular Science Papers

"Blessings on Science! When the Earth seemed old,
When Faith grew doting, and our reason cold,
'Twas she discovered that the world was young,
And taught a language to its lisping tongue."

—*Charles Mackay.*

VEGETABLE COWS.

Several natural orders of the vegetable kingdom include plants that are characterized by the secretion of a fluid closely resembling milk in appearance and consistency, and a familiar example of these is to be seen in our common milkweed (*Asclepias cornuti*), which is well known to everybody. In some plants, this milky fluid is of the most venomous nature; in others, it possesses active medicinal virtues; in others, it yields a product (such as India-rubber and gutta-percha) of the highest importance to the arts and industries; and, in others still, it proves of value as a human aliment. Since the same general properties characterize the plants of each natural family, it seems an anomaly that, in the same order, we should find the species of one genus producing a lactescent fluid of a highly poisonous nature, and those of another yielding one that is entirely innocuous. Yet such is often the case, and we have a striking example of it in the bread-fruit order, the Artocarpaceæ, which, on the one hand, includes the celebrated upas tree of Java, when pierced, exuding a milky juice containing an acrid virulent poison (antiarin), the smallest quantity of which will kill the largest animal; and, on the other, the famous *Brosimum utili* of South America, which yields a copious supply of rich, wholesome milk, of as good a quality as that from the cow, There are several other instances in the vegetable kingdom of such an association, in the same natural order, of plants that produce a noxious lactescent juice with others which yield a wholesome one adapted for man's use, and which may therefore be designated as "vegetable cows." To speak only of the latter class, the most remarkable example is the species of *Brosimum* just mentioned, which was discovered and made known by the celebrated traveller Humboldt. This tree forms extensive forests on the mountains near the town of Coriaco, and elsewhere along the sea-coast of Venezuela—growing to upwards of one hundred feet in height, with a trunk six or eight feet in diameter, and branchless for the first sixty or seventy feet of its height. It is popularly known as the cow tree, Palo de Vaca, or Arbol de Leche. "Its milk, which is obtained by making incisions in the trunk, so closely resembles the milk of a cow, both in appearance and quality, that it is commonly used as an article of food by the inhabitants of the places where the tree is abundant. Unlike many other vegetable milks, it is perfectly wholesome and very nourishing, possessing an agreeable taste, like that of sweet cream, and a pleasant balsamic odour, its only unpleasant quality being a slight amount of stickiness. The chemical analysis of this milk has shown it to possess a composition closely resembling some animal substances; and, like animal milk, it quickly forms a yellow, cheesy scum upon its surface, and, after a few days' exposure to the atmosphere, turns sour and putrifies. It contains upward of thirty per cent. of a resinous substance called *galactin* by chemists" (*Treas. of Botany*). Speaking of this tree, Humboldt says: "They [the natives] profess to recognize, from the colour and thickness of the foliage, the trunks that yield the most juice, as the herdsman

distinguishes, from external signs, a good milch cow. Amidst the great number of curious phenomena that I have observed in the course of my travels, I confess there are few that have made so powerful an impression on me as the aspect of the cow tree. A few drops of vegetable juice recall to our minds all the powerfulness and fecundity of nature. On the barren flank of a rock grows a tree with coriaceous and dry leaves. Its large, woody roots can scarcely penetrate into the stone. For several months in the year, not a single shower moistens its foliage. Its branches appear dead and dried, but when the trunk is pierced, there flows from it a sweet and nourishing milk. It is at the rising of the sun that this vegetable fountain is most abundant. The negroes and natives are then seen hastening from all quarters, furnished with large bowls to receive the milk, which grows yellow and thickens at the surface. Some empty the bowls under the tree itself, others carry the juice home to their children."

In the Dogbane order, the Apocynaceæ, which includes plants that are mostly of a venomous nature and possess an exceedingly acrid and drastic juice, we have a second example of a tree that secretes a wholesome, milk-like fluid. This is the *Tabernæmontana utilis*, the cow tree of Demarara, or hya-hya of the natives. This tree grows in abundance in the forests of British Guiana, and its bark, when tapped, yields a copious supply of thick, sweet milk, resembling that of the cow in appearance, but rather sticky, from the presence of caoutchouc. This milk mixes freely with water, is of a pleasant flavour, and the natives employ it as a refreshing beverage.

Two "cow trees" are found in the order Sapotaceæ, which embraces numerous plants valuable for their succulent fruits, such as the marmalade, star-apple, &c. One of these is the *Mimusops elata*, called by the natives massarandaba or aprain, and which Professor Orton, in the *Andes and the Amazons*, describes as one of the noblest trees of the forests of Para. It stands from 180 to 200 feet in height, is 20 feet in circumference, and is crowned with a vast dome of foliage. The milk yielded by the bark has the consistency of cream, and is used for tea, coffee, and custards. It hardens by exposure, so as to resemble gutta-percha, which, indeed, is the product of a Malaisian tree belonging to the same natural order. The other tree is the *Mimusops balata*, or bully tree, of English, French, and Dutch Guiana. The milk of this species is sometimes employed with tea or coffee instead of cow's milk, but has the disadvantage of hardening very rapidly upon exposure to the air.

The natural order Asclepiadaceæ consists of plants that are almost always milky, and the milk is usually acrid and bitter, and always to be suspected; yet one of the plants of the family, *Gymnema lactiferum*, the cow plant of Ceylon, called by the natives kiriaghuna, yields a milk which the Cingalese make use of as food.

Another example of a "cow tree" belonging to a dangerous natural order, the Euphorbiaceæ, which embraces plants having acrid and purgative juices, is the *Euphorbia balsamifera*, or Tabayba dolce, of the Canaries. Notwithstanding the fact that the plants of this genus have juices that possess very active medicinal qualities, and are in some cases so venomous that they are used as arrow-poisons, the juice of the species under consideration is innocuous, and, according to Leopold von Buch, is similar to sweet milk, and is eaten as a delicacy after being thickened into a jelly.

Still another "cow tree" is found in the order Clusiaceæ or Guttiferæ, which embraces plants that secrete an acrid, purgative, yellow gum-resin, such as gamboge. This tree is the *Clusia galactodendron*, a native of Venezuela, where it is known as Palo de Vaca. It has a thick bark, covered with rough tubercles, and its internal tissue becomes red when exposed to the air. In extracting the milk, the inhabitants make incisions through the bark till the wood is reached. These cuts are said to be made only before full moon, it being imagined that the milk flows more freely then than at any other time. One tree will yield a quart in an hour. The milk is freely used by all, especially by children, although it has a somewhat astringent taste.

In the order *Moraceæ*, which includes the mulberry and fig, there are several species of *Ficus* that are known as cow trees, and the milky fluid of which is bland and used as a beverage, although in most of the species of the genus the juice is exceedingly acrid.—*Nature*.

Clerk: "Mr. Brigsby, I want to ask a favour of you." Employer: "Well, James, what is it?" "A beloved uncle of mine is to be buried to-day, and I would like to go to the funeral." Employer: "Very well, James; but wait a few minutes, and we'll go together. I want to see the ball game myself."

M. A. Lambert, Pharmacist-in-Chief of the Bron Insane Asylum, near Lyons, is of opinion that, notwithstanding all orders and decrees, the use of salicylic acid as a food-preservative is as prevalent as ever. Lately, he discovered the poison in eggs, the last diet-article, perhaps, where it could have been suspected. Dealers in salicylic acid claim it to be as efficient as lime for preserving eggs, while the acid does not penetrate through the shell, but simply acts as an antiseptic on the surroundings. Lambert says that salicylic acid does penetrate through the shell, and soon permeates both the white and the yolk. To detect the acid, the albumen is to be beaten with a little water, and on the liquor being acidulated and shaken with ether, salicylic acid may be easily identified by the usual tests. The same process answers for the yolk, but it must be first coagulated by heat.

Physical Exercise among Celestials. — A correspondent of the Shanghai North China *Herald* says that to the average Celestial it is a matter of indifference how long he remains in one position. He will write all day like an automaton, he will work from morn to eve without any variation, and apparently without any consciousness of the monotony. The Chinese school-children will undergo an amount of confinement, unrelieved by recesses or changes of work, which would drive a western pupil to the verge of insanity. Even Chinese children are said to remain as impassive as "mud gods." To the Chinese, exercise appears to be superfluous, and they can sleep anywhere. With a brick for a pillow, the "heathen Chinee" can lie down on his bed of stalks, or mud bricks, or rattan, and sleep the sleep of the just, with no reference to the rest of creation. He does not want a darkened room, nor does he require others to be still. The "infant crying in the night" may continue to cry for all he cares, it does not disturb him. In the case of most working-people, and also with that of many others, position in sleep is of no sort of consequence.

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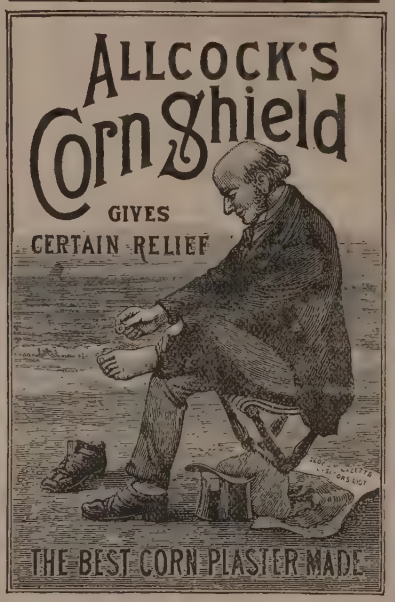

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DR. HENRY B. BAKER, Secretary of the Michigan State Board of Health, in concluding a paper on "The Causation of Cold-Weather Diseases," which he calls "an attempt to explain the causation of inflammations of the air-passages, and the seasonal susceptibility to certain communicable diseases which are shown to be most prevalent in cold weather," advances the following facts as having been demonstrated in his article :—

1. That diphtheria, scarlet fever, and small-pox increase after the atmosphere is cold and dry, and decrease after the atmosphere is warm and moist.

2. That the three communicable diseases named above probably generally enter the body through the air-passages, and that the reason why they increase after the cold months is because of the greater susceptibility of the air-passages in those months, and that this is the reason why the curves for these communicable diseases are found to follow the curves for influenza tonsilitis and bronchitis.

3. That the non-volatile salts of the blood exuded in excess into and upon the mucous surfaces of the air-passages are capable of leading to an inflammation which is called "influenza," "tonsilitis," or "bronchitis"—according to the portion of the respiratory tract involved.

4. That, other things being equal, the non-volatile salts are left by evaporation on the mucous lining of the air-passages, in proportion to the dryness of the air inhaled.

5. That inasmuch as the absolute dryness of the air ordinarily depends upon its coldness, the inflammations of the air-passages should be expected to rise as they do after the cold dry weather, and fall after warm moist weather.

6. That the non-volatile salts are likely to be in excess in the blood under some conditions of diet, or non-action of the skin or kidneys through which, under normal conditions, they pass out of the body. Therefore,

7. That certain kinds of diet, or non-action of the skin or kidneys, may predispose to inflammation of the air-passages, and consequently to any communicable disease, which enters the body by way of the air-passages, to which the person may be susceptible.

8. That, aside from the cause herein assigned (non-volatile salts), no other known cause, capable of causing inflammation of the air-passages, is "present and acting" in proportion to the coldness and dryness of the atmosphere.

In connection with the foregoing, a few supposed facts, not entirely outside of the province of this paper, should be held in mind, because they tend to modify the force of the evidence herein presented :—

a. Vaccine virus (and, therefore, possibly the virus of the cold-weather communicable diseases) retains its vitality longer in cold than in warm weather.

b. The danger of contracting a communicable disease is probably increased by exposure to the contagium in a bady-ventilated room, and rooms are more frequently badly ventilated during the cold weather.

But neither of these two statements is known to be true so nearly in proportion to the temperature of the atmosphere as to explain the close correspondence with which the curves of these diseases follow the curves representing the temperature of the atmosphere. And since it is proved in this paper that the ordinary inflammations of the air-passages also follow the rises and falls of the atmospheric temperature, and are believed to be non-contagious, their equally close correspondence with the temperature changes cannot be accounted for by the varying degrees of vitality of a poison, nor by bad ventilation, especially as they are so frequently traced to exposure to cold out-door atmosphere.

9. That so far as is yet proved by statistics of a large number of cases, the strongest controlling cause of inflammatory diseases of the air-passages is exposure in a cold dry atmosphere.

10. That, excepting inoculation and other similar exposure to the specific cause of the disease, the strongest controlling cause of the spread of those communicable diseases, which generally enter the body through the air-passages, is exposure in a cold dry atmosphere.

DESTRUCTION OF TOWN REFUSE.

THE destruction of town refuse is more and more engaging the attention of municipal authorities in this country as population increases, and with it the size and number of individual water-works, which renders the pollution of our fresh-water streams at once more frequent and more dangerous.

Next to pure water there is nothing more important to a municipality than the satisfactory disposal of its refuse, and the two matters are often closely connected.

If garbage cannot be safely and conveniently thrown into the water, as is very seldom the case, even New York, with her unrivalled facilities in this respect, having difficulty in dumping hers so far out at sea that wind and tide will not bring much of it back again to the shore; or if burying it, as Rochester does the garbage from the area drained by her water-supply, is inconvenient or too expensive, then cremation would seem to be the only alternative, and for this we have a precedent of high antiquity, as the refuse of the temple, if not of the whole city of Jerusalem, was consumed by fire in the adjoining valley of Gehenna nearly three thousand years ago. And the sanitary regulations of the ancient Jews, as instituted by Moses and carried out by his successors, were eminently sound and practical, even in the light of modern science; and doubtless had much to do with the unconquerable vitality of the race for which they were enacted.

Garbage cremation in this country has not yet passed the experimental stage, and the experiment, judging from the experience of Pittsburg and Milwaukee, is not always satisfactory. Judging from this fact and the enquiries we often receive about garbage cremators, we believe that the illustrated article on the "Destruction of Town Refuse," a report made by Thomas Codrington, M.Inst.C.E., to the Local Government Board of Great Britain, of which he is an engineering inspector, will be of great interest and value to all concerned in the care of our large cities. It is an official record of all that has recently been done in that line in Great Britain, where a denser population earlier compelled the trial of garbage cremation, and has consequently brought the system to much greater perfection than has yet been realized in this country. The destructors described are located in the following towns: Manchester, Birmingham, Glasgow, Blackford, Leeds, Bradford, Bolton, Bury, Preston, Salford, Newcastle, Hull, Derby, Nottingham, Blackburn, Heckmondwike, Warrington, London, Whitechapel, Ealing, Southampton, Buxton, Bournemouth, and Winchester.

Though we published accounts of the refuse destructor at Birmingham, England, in our issues of 1881, and other refuse destructors have since been illustrated from time to time in our columns, we do not recall an illustration of one built in the United States, except the one constructed at the military post on Governor's Island, N.Y. Captain H. J. Reilly, U.S.A., under whose direction it was built, furnished us with the drawings, and in his description said: "I made many unsuccessful attempts to get some information as to the proper construction of a furnace for the purpose. I finally applied to you, and it was on information derived entirely from your valuable paper that the furnace now in successful operation was built."

It is hoped that by the publication of this report of Mr. Codrington, together with some other information on this subject which we have collected, our American engineers may be able, like Captain Reilly, to learn much that will be of service to them in dealing with the garbage problem.

We also hope that this record of English practice will lead some of those who have experimented in similar lines in this country to state the results of their experience, and we trust that they will not always wait until those results are entirely satisfactory, for that may take a long time, and meanwhile others may from a record of failure learn what not to do. It should always be remembered that a complete and accurate record of an unsuccessful experiment, though gaining less credit, is, from a purely scientific point of view, nearly, or quite, as valuable as that of a successful one. In either case it is a statement of certain results following the use of certain methods from which more or less general laws can be deduced for future guidance.

Let us know, then, what the garbage cremators of the United States are doing now.—*Sanitary Engineer.*

WHAT IS GAVAGE?—Gavage is the name given to a new system of feeding newly-born children who are born before term, or who are delicate. The apparatus necessary for the purpose is very simple. Take a piece of gutta-percha tubing about the size of a No. 14 or 15 French catheter. This is fixed on one of the breast shields in common use for sore nipples. The child is placed on the knee of the nurse, with the head slightly raised. The sound is moistened with milk, introduced at the base of the tongue; the child by a reflex act of deglutition will generally draw it as far as the entrance to the esophagus, if not, it is gently conducted there until fifteen centimètres of the sound are introduced. Pinch the sound between two fingers, pour into the cupula two or three tablespoonfuls of milk, and relax pressure until it flows gently into the stomach. The sound must be taken out gently and quickly, and the infant placed in the warm cradle or converse. The apparatus must be washed in a solution of boric acid and pure water. The quantity of milk given to the weakest infants is eight grammes every hour. In general, in spite of gavage, the child loses weight for the first few days; but weight soon begins to increase regularly. Gavage, carried out according to the rules minutely laid down by M. Tarnier, has produced marvellous results and veritable resurrections. Children of six months by the convense and gavage have been reared, and M. Tarnier hopes even to arrive some day at the rearing of children born before the end of six months.—*Provincial Medical Journal.*

Jottings from the Journals

"Th' ingredients of health and long life are
Great temperance, open air,
Easy labour little care."—*Sir Philip Sydney.*

Digestion in Infants.—There is no doubt much yet to be learnt from the analysis of the fæces, not only in adults, but in children. If such analysis were systematically prosecuted in cases of disease, much light would be thrown on obscure cases of malnutrition. Very little, however has been done on the subject, owing partly to the difficulty and partly to the unpleasant nature of the investigation. In a given case of disease, for example, it is not sufficient for the physician to know what nitrogen percentage is present in the fæces, but what amount of proteid matter is found, and of what nature, whether undigested albumen or peptone. A knowledge of the amount of carbo-hydrates and of fatty matter is also very important. A research, lately prosecuted by Tschernoff, deals with these points in infants. This observer first states that it is a great mistake to suppose that the milk taken by suckling children or those fed by the bottle is completely assimilated. A great deal of the albuminous matter of the milk is found in the fæces, and in the form of a body not soluble in dilute hydrochloric acid (half per cent.), but entering into solution under the prolonged action of pepsin. Moreover, in healthy children at the breast, leucin, tyrosin, and the other decomposition products of albumen are not found in the fæces, or if at all, only in very small quantities. The analyses given by Tschernoff are very interesting. He reckons the whole of the nitrogen of the fæces as proteid, and finds that this forms 32 per cent. of the dried weight (equals 5·2 per cent. nitrogen), 10 per cent. being ash, and 25 to 30 per cent. being fat. These results are from the normal fæces of children at the breast. In those brought up on cow's milk the proportion of nitrogen found is higher, namely, 6 to 7 per cent., showing that the digestion of the proteid is not so complete. The amount of carbo-hydrate in the fæces of children is usually stated as varying from 58 to 60 per cent.; but it was proved that in this was reckoned some of the proteid; so that, according to the Russian observer, the real amount is between 28 and 30 per cent. Curiously enough, it was proved that in disorders of the digestive organs the percentage of nitrogen in the fæces diminished (being on the average, 3·1 per cent.). This apparent paradox is, however, explained by the fact that in these dyspeptic sucklings the amount of fat was greatly increased, being about 48 per cent.—*British Medical Journal.*

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Health Teaching in Board Schools.—The Manchester School Board have taken a step in connection with their work of education which cannot fail to commend itself to all interested in sanitary reform; and who is not? They have introduced a system of practical instruction in the art of living wholesomely, though in a state of poverty aggravated by the demands of civilization. The usefulness of practical methods in teaching is now universally admitted. Their application in the manner we have indicated is particularly appropriate. Recognizing the special needs and difficulties of the children under their charge, the Manchester Board have set themselves to show that the principles of health, cleanliness, thrift, and domestic comfort are as capable of being taught as the elements of what is called scholarship. The plan observed by them is instructive, and its details are carefully adapted to the age and intelligence of different children. In the case of

infants under seven years of age the Kindergarten system is in general activity. The right uses of clothes, food, soap and water, &c., are thus continually presented to the developing mind. When the child can read, the ideas already formed are further impressed by the employment of class-books, which, though primarily intended to teach reading, serve also as elementary manuals of personal and domestic hygiene. The theories thus imparted are gradually assimilated and transformed into action in a variety of ways. The first great lesson of cleanliness is practically applied by holding an inspection of the children twice daily with regard to this important matter. Lavatories for common use have been provided, and in some schools young children are, if needful, washed by a person appointed for the purpose. At certain hours, various public baths are thrown open for use by the children at a trifling cost. The older girls are taught cookery in a similarly efficient manner, the materials used being purposely of a kind adapted to the usages of a humble home. Pupils on leaving school are advised to attend evening classes, opened by the Board for their further education in matters relating to health. It is hardly possible to speak too highly of this promising endeavour to improve the social life of the poorer classes. We cannot, of course, expect a large and immediate measure of success. Until we can abolish poverty, over-work, and over-crowding, dirt and disorder are inevitable. It is evident, however, that such a course of training as we have sketched, especially when supplemented by the hopes and energies bred by a sound general education, should go far to modify and to prevent those two common evils. —*Lancet.*

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Whisky Not an Antidote to Rattlesnake Poison.—Dr. A. T. Hudson, of Stockton, Cal., writes: "Having often seen the statement made in the public press, and sometimes in medical journals, that whisky and ammonia were the acknowledged antidotes to rattlesnake-bite, I feel it a duty to administer a corrective to the above fallacious teaching. About thirty years ago Professor Weir Mitchell, of Philadelphia, spent over two years in carefully experimenting with the virus of snake-poisons. Taking a few drops of the pure virus from the sac of the snake, he mixed it consecutively with alcohol, ammonia, iodine, bromine, mercury, and other reputed antidotes, then injected the solution of each into birds, rabbits, dogs, goats, and other animals,—when he found that the poison was not altered in its power, but would produce its specific toxic effect just the same as when it was undiluted. He found, also, that the virus was fatal only to a certain extent; that is, if it took half a drop to kill an animal of thirty pounds' weight, it would require one to two drops to kill one of sixty to eighty pounds. Its action is immediate, and it kills only when the animal is too small and weak in resistive vitality. It is rare that an adult person dies from the bite of a rattlesnake. The virus of the cobra is more intense and fatal. Several years ago a prominent minister in Philadelphia died from the bite of a young cobra. As a given quantity of the rattlesnake virus is necessary to overcome a certain amount of physical force, it is seldom that such quantity is ever deposited by the snake-bite upon an adult person. If a large snake should bite a goat of fifty pounds weight, and soon after bite two children of about the same weight, the goat might die, but the children would not, for the reason that the goat would receive the largest amount of the virus, when there would be but little left to poison the children. In such a case, whisky being used on the children, their recovery would be attributed to the whisky; so the friends and neighbours would think they have a positive proof of a sure antidote in whisky. Here is the fallacy which science alone can demonstrate. If, when whisky is mixed with the poison directly, it is no antidote, how can it become so when taken into the body remotely, the whisky in the stomach and the poison in the goat? Physiologically, whisky is antidotal so far as it will sustain the flagging powers during the time the poison is being eliminated by the excretory organs. In the light of the above scientific demonstrations, how a doctor can gravely or frantically proceed to treat a rattlesnake bite 'by injecting around the wound permanganate of potassa, or any supposed antidotes, or order a chicken split open and applied to the wound, or the anus of the chicken applied over the wound, using a number of different fowls for the purpose,' is a problem hard to understand in this age of reason."—*Medical Record.*

Sanitary Appliances, Etc.

BAYLEY'S WOOD OILS.

"Bayley's Wood Oils" is the name of a preparation made by Mr. Bayley, chemist, of 2, Park-street, Walsall, and consists of pure ingredients, so compounded as to prove serviceable in all cases in which it is desirable to use a liniment for the cure of sprains, bruises, lumbago, and allied rheumatic and muscular troubles. The "Wood Oils" contain no injurious substance, and can be administered internally in cases of bronchitis, winter-cough, tooth-ache, colic, &c., in which an anti-spasmodic and anodyne effect is to be produced. These "Oils," as tested by us, appear also to possess expectorant qualities. Full directions accompany each bottle, which is sold at the moderate price of one shilling. Our readers who may require a useful domestic medicine, serviceable for many accidents and emergencies, should make a note of these "Wood Oils" and their qualities.

Blue-lined writing-paper is almost universally manufactured both in this country and Europe. The school commissioners at Mainz have, upon medical advice, decided that the blue lines are bad for the eyes, and ordered that all school writing-paper shall be ruled in black.

Removal of Rust.—A method of removing rust from iron consists in immersing the articles in a bath consisting of a nearly saturated solution of chloride of tin. The length of time during which the objects are allowed to remain in the bath depends on the thickness of the coating of rust; but in ordinary cases twelve to twenty-four hours is sufficient. The solution ought not to contain a great excess of acid if the iron itself is not to be attacked. On taking them from the bath, the articles are rinsed in water and afterwards in ammonia. The iron, when thus treated, has the appearance of dull silver, but a simple polishing will give it its normal appearance.

Cigarette Smoking.—Dr. W. L. Dudley has been conducting some experiments with cigarettes in order to determine their effect upon smokers. His conclusions are, (1) that carbonic oxide is the most poisonous constituent of tobacco smoke; (2) that more injury results from cigarette than cigar or pipe smoking, because, as a rule, the smoke of the former is inhaled; (3) that cigarette smoking without inhaling is no more injurious than pipe or cigar smoking; (4) that the smoke of a cigar or pipe, if inhaled, is as injurious as cigarette smoke inhaled; and (5) that the smoke from a Turkish pipe, if inhaled, is as injurious as that of a cigarette inhaled.

Our Letter-Box

"Conference [maketh] a ready man."—*Bacon.*

NOTICES TO CORRESPONDENTS.

All Communications for the Editorial Department (including Books for Review, Specimens of Sanitary Appliances, &c.), to be addressed to "THE EDITOR OF HEALTH," 2, PATERNOSTER-SQUARE, LONDON, E.C. *Those intended for the Publishing Office to be sent to* MR. A. P. WATT, THE PUBLISHER, *at the same address.*

RULES FOR CORRESPONDENTS.

OWING to the mass of letters which reaches us each week, we respectfully direct the attention of Correspondents, desiring replies in the LETTER-BOX DEPARTMENT of HEALTH, to the following rules:—

1. All questions are answered free of charge in the columns of HEALTH. A limited space only, is available for the insertion of replies each week.
2. All letters must be legibly addressed to "The Editor of HEALTH, 2, Paternoster-square, London, E.C.," *and to no other address.*
3. Questions to which answers are desired by post, are so replied to solely at the Editor's discretion. If no answer is sent by post, the query will be replied to in the "Letter-Box" columns of HEALTH. A stamped addressed envelope must accompany all queries to which a private reply is desired.
4. Addresses of physicians and surgeons will, as heretofore, be forwarded FREE to Correspondents on their enclosing a stamped addressed envelope for reply.
5. Correspondents are requested to write on one side of the paper only, and to make their inquiries as brief as may be consistent with clearness.
6. From the necessity of sending HEALTH to press early in the week, no Correspondent can be replied to in the "Letter-Box" columns in the same week in which the inquiry is received. Replies crushed out of any issue will be found in the succeeding number.
7. No Post Cards must be used in sending queries. Violation of this rule deprives the sender of the privilege of a reply.

NERVOUS EXHAUSTION.

PULVERMACHER'S World-Famed GALVANIC BELTS for the Cure of NERVOUS EXHAUSTION and DEBILITY, have received testimonials from three Physicians to Her Majesty the Queen, and the leading Physicians of nine London Hospitals, including over Forty Members of the Royal College of Physicians of London.

The distressing symptoms of NERVOUS EXHAUSTION and DEBILITY are speedily removed by means of **PULVERMACHER'S world-famed Galvanic Belts,** which are so arranged as to convey a continuous electric current direct to the affected parts, gradually stimulating and strengthening all the nerves and muscles, and speedily arresting all symptoms of waste and decay.

Dr. H. A. ALLBUTT, M.R.C.P., 24, Park Square, Leeds, writes, Oct. 1888:—'I always recommend with confidence MR. PULVERMACHER'S BELTS. Ladies recovering from illness incidental to their sex will find these BELTS of vast assistance in restoring lost nerve power."

Dr. C. HANDFIELD JONES, F.R.C.P., F.R.S., Physician to St. Mary's Hospital, says: "I am satisfied that MR. PULVERMACHER is an honest and earnest labourer in the field of science, and I think he deserves to meet with every encouragement from the profession and scientific men."

SIR CHARLES LOCOCK, Bart., M.D., says:—"PULVERMACHER'S BELTS are very effective in neuralgia and rheumatic affections, and I have prescribed them largely in my practice for other similar maladies, paralysis, &c."

For full Price List and particulars, see New Pamphlet **"GALVANISM: Nature's Chief Restorer of Impaired Vital Energy."** Post Free from

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QUERIES AND ANSWERS.

REPLIES: GENERAL, SANITARY, AND MEDICAL.

E. MAX.—The worm is one of the "round" worms liable to inhabit the digestive system. The usual source of infection by this worm is, probably, polluted water; but these worms may also breed within the human body. We should advise you to take five grains of Santonin once a day, for three days in succession. After taking the Santonin, a tablespoonful of castor oil should be given. An effect of the Santonin is occasionally seen in its causing objects to appear yellow or green; but this effect rapidly disappears, and may not be developed at all, if the castor oil be taken as directed.

SODEN.—Superfluous hairs can only be satisfactorily removed by electrical means. Read the article on this subject in HEALTH, No. 149. We can send, if desired, on receipt of stamped addressed envelope, address of a specialist who removes hairs in this way.

C. A. G.—Use the "Pommade Trichophile" of the French Hygienic Society, 56, Conduit-street, Regent-street, London, W. (advertised in our pages); it is an excellent remedy for scurf.

R. F. M.—Our advice to you is to read and study carefully what is said about cases like yours in the pamphlet, "A Lecture to Young Men" (post free for 1s. 1d. from Mr. Renshaw, 356, Strand, London, W.C.); you will find full advice therein given you.

L. E.—Try the effect of taking fifteen drops Fer Bravais in water, after your meals, thrice daily, as you require such a tonic. In addition, wash the affected parts morning and night with Bayley's Soap and tepid water, and dust thereon, after washing, a little of Woolley's Sanitary Rose Powder.

POSTAL.—A good lotion for blackheads is made by mixing three drachms of sulphur, four drachms of glycerine, and four ounces of rectified spirits. This should be rubbed into the skin at night.

BROUGHTY.—Read the pamphlet, "A Lecture to Young Men" (post free, for 1s. 1d., from Mr. Renshaw, 356, Strand, London, W.C.), and follow out the advice it gives. The circular you enclose is that of a quack.

M. B.—The operation might be performed without chloroform. Cocaine may be used to abolish pain locally. You would certainly require to remain in bed for a few days.

G. P.—Take the following pill: Extract of Barbadoes aloes, two grains; extract of nux vomica, half a grain; extract of gentian, a grain and a half. Make a pill. One such pill to be taken once a day, half an hour before meals.

SILCOX.—Give up the tonic for a time, and take twenty or thirty drops of the Cascara Cordial, or two Cascara Tabloids, twice daily between your meals. Eat whole-meal bread, stewed fruits and vegetables, and avoid tea and coffee. Substitute for tea, morning and night, Scott's Midlothian Oat Flour.

GERTRUDE S.—Brush the hair regularly night and morning with a soft brush, and rub in a little of the following to the roots each morning: Eau de Cologne, two ounces; tincture of cantharides, two drachms; oil of rosemary and oil of lavender, of each, ten drops. Mix. Label: "The Hair Lotion."

REX.—Have the following made up by your chemist, and adopt a light diet: Bicarbonate of soda, two drachms; dilute hydrocyanic acid, twelve minims; compound infusion of gentian, to eight ounces. Mix. Take a tablespoonful twice daily, an hour before meals.

T. S. S.—Rest after your meals; avoid tea, coffee, and all acid substances, and take the following powder: Powdered rhubarb, four grains; pepsine, three grains. Have twelve such powders made by a druggist, and take one after dinner each day.

S. MARTIN.—The trusses of the Medical Battery Co. would suit the case you name. They are light and comfortable to wear; but must, of course, be properly fitted to the case. A personal visit should be made to 52, Oxford-street, W.

S. O. B.—You must be properly fitted with spectacles, as a proper fit serves to cure such irregularities. Write to, or call upon, Mr. Browning, 63, Strand, London, W.C., and 15, Kensington-crescent, W., and take his advice regarding the glasses adapted for your cure.

THOMAS THORN.—Simply live plainly, and continue the cold sponging each morning, and take occasionally a wineglass of Vin Mariani (Roberts & Co., New Bond-street, London, W.), as a suitable tonic, after meals. You will recover your tone perfectly in time, and need not be alarmed in the least.

ANXIOUS MOTHER.—Blow carefully into the ear each morning a little very finely powdered boracic acid,—avoid putting any cotton wool into the ear,—and internally give the child a little chemical food after meals. If not bettered we can send you address of specialist in ear diseases, on receipt of stamped addressed envelope. Avoid colds and chills of course, and clothe the child warmly.

ALPHA.—1. Wear woollen socks (Forsyth's, 17, Renfield-street, Glasgow), and change them frequently. Wash your feet night and morning with tepid water, and dust Woolley's Sanitary Rose

Powder into your socks. Take after your meals a little of Thomson's Cod Oil Cream as a nutrient and tonic. 2. Address the Publisher with reference to the advertisement.

SARMAN.—Hazeline, used as a lotion, is a capital application for piles; but you might with advantage try the cure prepared by Bayley, 17, Cockspur-street, Pall-mall, London, S.W. This is very effective. See that you avoid constipation above all; note advice on this head given to "Edinburgh" in HEALTH, No. 294.

ELEUSIS.—The Hygeia Corset made by Messrs. E. Ward & Co., of Bradford, is that we recommend, as being adapted to the figure without compression.

OMEGA.—1. No: malted bread has no such effect. 2. If taken in too great quantity. 3. Beef tea, being simply like soup, can be taken as such with your meals if desired. 4. Yes: apply to Mr. Pulvermacher.

TRIVIATOR.—All your symptoms point to your natural nervousness having been increased by your study. Our advice to you is to take plenty of fresh air and exercise, and at dinner each day (but not at other times) take a glass of stout or a couple of glasses of good claret. This strictly dietetic use of alcohol is a well-known remedy for such symptoms as yours, and thus medically used, promotes assimilation. Let us hear from you again after a trial of our advice. Read also the pamphlet, "A Lecture to Young Men" (post free, for 1s. 1d., from Mr. Renshaw, 356, Strand, London, W.C.), and attend to health-rules therein laid down. The prescription you send is one for a depressent and sedative remedy, and should not be taken by you for your merely nervous symptoms.

J. P. B.—1. Use a little Lanoline Cold Cream regularly at bedtime for the skin, and wash with Bayley's Spermaceti Soap. 2. Try fifteen drops of Fer Bravais in water, thrice daily, after your meals.

J. BYRNE.—Read the pamphlet above recommended to "Triviator," and you will learn therefrom the rules for health. What you name often depends upon your standing too long, and also arises from constipation. The pamphlet will show you how to cure the latter condition by diet. Sit and rest with your feet elevated.

ONE PERPLEXED.—Apply a little pure white vaseline night and morning to the parts after washing.

STELLA.—You should not meddle any further with the swellings. They will either go completely away in time, or, at least, give you no annoyance. You need have no fears on account of the glands. Do not make any rash changes in your diet, simply take a moderate amount of vegetables every day.

B. C. G.—HEALTH is not written for the perusal of children, but of robust-minded, sensible persons. Even if you disagree with our opinions, you have no right to impugn the honesty of those opinions. Besides, who asked you to sit in the chair of the censor or scorner? Did you ever hear of the Paisley weaver who prayed that he might be given "a good conceit of himself"?

DEBTOR.—1. Read the article on Blackheads and how to treat them in HEALTH, No. 199, to be had from the Publisher. 2. Consult a surgeon, who will advise you as to any boots or apparatus which may be necessary. Take plenty of oatmeal as a bone-forming food.

C. E. PARKER.—Twyford's "Unitas" Closet is that you should fit up in your new premises. It is cleanly, and not liable to get out of order.

CORROBORATIVE EVIDENCE.

IT is easy to make assertions, but often difficult to prove them. People now-a-days demand a verification of any statement that may be made, and it is right that they should. For months the columns of this paper have contained the most extraordinary statements, made by the proprietors of a much advertised article as to the merits of their remedy. To-day they present the testimony of our neighbours and friends in verification of what they have asserted in the past. Such testimony must be accepted and respected because it comes from people living right here in Surrey, where the truth of their statements can be easily verified. The following are published with the hope that the fullest investigation will be made by the public.

Mr. D. Mills, 2, Drakefield-road, Hatcham.—"I have found great benefit from disease by the use of 'Warner's SAFE Cure.'"

Mr. J. Prior, 244, Brockley-road, Brockley, S.E.—"I have been cured of indigestion, caused by sluggish liver, by the use of 'Warner's SAFE Cure.'"

Mr. J. A. Piccaver, 140, Stockwell Park-road, Brixton.—"Having been saved from a premature grave by the use of 'Warner's SAFE Cure,' I am anxious the world should know of its efficacy in curing Bright's disease."

Mr. E. Henry, 128, Hither-green, Lewisham.—"After a long spell of sickness, I have been restored to vigorous health by the use of 'Warner's SAFE Cure.'"

Mrs. Merrita Cox, 125, Albert-road, Peckham.—"I cannot express my gratitude for the benefit I have derived from 'Warner's SAFE Cure.'"

Mr. Emanuel Beebee, 47, Haymerle-road, Peckham.—"I suffered from stone in the bladder, and was told by my medical man that I must go to the hospital and have it cut out; I took 'Warner's SAFE Cure,' and was cured."

Statements like the above ought to be convincing; but if you still doubt, write to any of the above, or all of them, enclosing stamp for reply, when full particulars will be sent you. If you are feeling unwell and are ignorant of the cause, write Warner & Co. for Treatment Blank and have your case diagnosed free of expense.

"Warner's SAFE Cure" can be had of all chemists and medicine vendors in the United Kingdom, at 4s. 6d. per bottle, or of H. H Warner and Co., 86, Clerkenwell-road, London, E.C.

J. A. ALBRECHT.—You could not do better than continue the Mellin's Food, and supplement or alternate it with one cow's milk suitably diluted. Give no starchy foods at all until the child is eight months old. Buy Miss Jex Blake's *Primer of Infancy*, price 1s. 6d., published by Macmillan & Co., London, and you will get many useful hints about feeding the child from its pages. Thanks for your good wishes.

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Telegraphic Address—"LAWINSKI, LONDON."

G. E. TAIT.—The following is a good cough mixture: Chlorodyne, one drachm; ipecacuanha wine, one drachm; syrup of squills, one drachm; glycerine, to make up two ounces. Label: "A teaspoonful in a little water at intervals."

S. BELFORD.—The ailment is a form of catarrh affecting the hinder nostrils. Try inhalations at bedtime of Friar's Balsam (a teaspoonful to a pint of hot water), or "Sanitas" Fluid may be used as an inhalation—see advertisement in our pages.

TINKER.—Drink Vichy Water regularly, and avoid alcohol. When your symptoms are specially troublesome, take fifteen grains citrate of potash in a tumbler of water, twice daily.

A. FAIR.—Drinking a tumbler of hot water twice daily, midway between your meals, is a useful remedy for such irritation. Take, after your meals, fifteen drops Fer Bravais, thrice daily in water.

GINEVRA.—Give Dahl's Cakes (advertised in our pages) a fair trial for the cure of constipation. They form a remedy at once simple and effective.

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Descriptive Pamphlet post free on application to

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Beware of Substitutes and Imitations.

NIGHTJAR.—The advice given in the present number to "Silcox" should be followed by you. Read also the article on "Glycerine and its Use in Constipation" in HEALTH, No. 285. Dahl's Cakes will be found highly useful to you as a laxative food.

ROBERT SOMMERVILLE.—You should peruse the article on "Acne and Blackheads" published in No. 199 of this journal, and follow out the treatment given in that paper.

CHILLY ONE.—Use a chloride of ammonium inhaler. Apply to your druggist or to Messrs. Burroughs, Wellcome & Co., Snow-hill-buildings, London, E.C., for an inhaler and directions regarding its use. Internally, after your meals, take Scott's Pure Cod Oil Emulsion.

HYGEIA.—There is no book known to us exactly corresponding to the description you give, desirable as such a book should be. The volume which most nearly approaches such a work in character is Pye Chavasse's "Advice to a Wife" (Churchill); while "The Ladies' Physician" (Cassell) is a good work. Such instruction as you indicate should be given by mothers rather than through books.

J. A. J. W.—See advice given to "Gertrude S." in the present number.

G. H. ROGERS.—Apply daily to the piles a lotion consisting of one part Hazeline and two parts water; and apply also each night the ointment sold by Bayley, 17, Cockspur-street, Pall-mall, S.W. The Pyrmont Tablets, sold by this firm, should also be given as part of the cure. For the other ailment, try douches of hot water twice or thrice daily, adding a little Condy's Fluid to the water. The system must also be braced up by Scott's Pure Cod Oil Emulsion, given after food, in dessertspoonful doses. If the patient can go down to Bournemouth or Ventnor for the winter, so much the better.

J. WILSON.—Wear woollen socks in bed, and change them each morning for your ordinary day socks, which should also be of woollen material,—*e.g.*, Forsyth's, 17, Renfield-street, Glasgow. Internally, take as a tonic, a teaspoonful of Easton's Syrup (Seller's) after your meals, twice daily, and if not cured write again.

C. FOX.—1. Address your inquiry to Mr. Harness of the Medical Battery Company, 52, Oxford-street, London, W. 2. No; it is a secretion, not an excretion.

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